



Application No. 10/625,372
Amendment dated October 19, 2006
Reply to Office Action of March 2006

Docket No.: 0020-5157P

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for inducing differentiation of mammalian embryonic stem cells into ~~functioning~~ insulin-producing cells, which comprises the steps of:

- 1)-(A) culturing the mammalian embryonic stem cells together with feeder cells with a medium comprising leukemia inhibitory factor;
- 2)-(B) culturing the cells obtained from step 1)-(A) in absence of feeder cells with a medium comprising leukemia Inhibitory factor and basic FGF in a suspension culture condition to give ~~embryonic~~ embryoid bodies;
- 3)-(C) culturing the obtained embryonic bodies with a selection-expanding medium; and
- 4)-(D) culturing the cells obtained ~~cell clusters from step (C)~~ with a differentiation medium to give ~~functioning~~ insulin producing cells.

2. (Currently Amended) The method of claim 1, wherein the medium used in step 2)-(B) comprises about 100-10000 U/ml of leukemia inhibitory factor.

3. (Currently Amended) The method of claim 1, wherein the medium used in step 2)-(B) comprises about 2-100 ng/ml of bFGF.

4. (Currently Amended) The method of claim 1, wherein the medium used in step 3)-(C) comprises nicotinamide, insulin and fibronectine in a serum-free cell culture medium.

5. (Currently Amended) The method of claim 1, wherein the ~~functioning~~ insulin producing cells are insulin producing pancreatic islet-like cell clusters.

6. (Currently Amended) The method of claim 5 wherein the medium used in step 4)(D) comprises nicotinamide, insulin and laminin in a serum-free cell culture medium.

7. (Withdrawn) The method of claim 1, wherein the functioning cells are nerve-like cells.

8. (Withdrawn - Currently Amended) The method of claim 7, wherein the medium used in step 4)(D) comprises L-lysine, insulin and laminin in a serum-free cell culture medium.

9. (Currently Amended) ~~Functioning~~The insulin producing cells induced from mammalian ES cells by the method of claim 1.

10. (Currently Amended) ~~Insulin~~The insulin secreting cell clusters induced from mammalian ES cells by the method of claim 5.

11. (Withdrawn) Nerve-like cells induced from mammalian ES cells by the method of claim 7.

12-13. (Cancelled)

14. (Withdrawn) A method for treating a mammalian patient having disorders in nerve function, which comprises implanting nerve-like cells induced from allogenic ES cells by the method of claim 7 to the patient.